
Characteristics of Rotating Savings and Credit Associations (ROSCAs) Participants in Ghana: Evidence from Asunafo North Municipality of Ghana

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Abstract: This study investigates the characteristics of ROSCA participants in Ghana, evidence from Asunafo North Municipality of Ghana. Open and closed ended questionnaire were administered to 400 ROSCA participants. Both purposive and convenient sampling techniques were employed for the study. It was found that females, married individuals, people with no or low level of education, people who are not financially constrained, the poor and people who receive extra financial assistance are the main characteristics of ROSCA participants in Ghana

1.1 Background of the study

The dominance of informal financial sectors are mainly seen in developing countries (Aryeetey & Hyuha, 1990). These sectors are unrecorded, legal and unregulated. Their activities are carried out outside the domain of formal financial activities. Rotating savings and credit associations (Ernest Amankwah, 2019) (ROSCAs) is one of the key informal financial institutions that are commonly found in developing economies. Shirley Ardener gave a more general definition by saying that “ROSCA is an association formed upon a core of participants who agree to make regular contributions to a fund which is given, in whole or in part, to each contributor in a rotation” (Ardener 1964).

Rotating savings and credit associations (ROSCAs) is a very popular informal financial sector in the Ghanaian economy. The institution can be traced from Geertz (1962). He emphatically stated that ROSCA rooted from regions of West Africa countries that were economically developed during the slave trade era where these West Africa origins were transported into the Caribbean and the southern part of the United States. On the other hand Ardener stated that ROSCA was in operation as far back at thirtieth century (1275 AD) in Japan. Handa and Kirton (1999) the Jamaica partner’ (term for ROSCA) gained its root from slaves from the Africa continent, who used it as a purchase of freedom

Rotating savings and credit association (ROSCA) is the most popular informal financial sector in Ghana. The root of ROSCA was traced by Geertz (1962) from the regions of West Africa countries that were economically developed during the slave trade era into the Caribbean and the southern part of the United States. According to Ardener, ROSCA operated in Japan as far back as the thirtieth century (1275 AD). Handa and Kirton (1999) on the other hand reported that the Jamaican.

Rotating savings and credit association was coined by Geertz (Geertz 1962). According to him, earlier scholars have used various kind of names to describe the association. Some of which include, slates, contribution clubs, pooling clubs, thrift groups and friendly societies. According to Amankwah et al. (2020), it is called Susu in Ghana, esusu in Liberia and Nigeria, Osusu in Gambia, asusu in Sierra Leone, and ndjonu in Benin, arisan in Indonesia, yao hui in China, tontine in Cameroon and Senegal, equbs in Ethiopia, huis in Vietnam.

ROSCA is made up of two forms namely random ROSCA and Bidding ROSCA. Besley et al. (1990), "defined random ROSCAs by saying that "In a random ROSCA, members commit to putting a fixed sum of money into a „pot' for each period of the life of the ROSCA. Lots are being drawn and the pot is randomly allocated to one member in the group. In the next period, the process repeats itself, except the previous winner is excluded from the draw for the pot. The process continues, with every past winner excluded, until each member of the ROSCA has received the pot once. At this point, the ROSCA is either disbanded or begins again. They went ahead and defined bidding ROSCA as one that allocates the pot by using bidding procedures. Thus the participant who obtains the pot in the current period does so by bidding higher. For instance, pledging higher future contributions to the ROSCA or onetime payment to the other members." Cited in Amankwah et al. (2020).

1.2 Literature Review

1.2.1 Some theoretical review

According to Besley et al. (1992) individuals who participate in ROSCA are credit constrained. Thus people who join ROSCA are mostly people who do not have access to the formal credit market. This may be as a result of lack of collateral security or inadequate availability of formal financial sectors.

Ardener (1995) argues that where incomes are very low, where there is no formal social security network, where ill health stalks and a variety of calamities, however, a system of low cost, ROSCA helps to meet the challenges for all. She also believed that ROSCAs are informal finance mechanism that is predominantly used by the poor.

Handa and Kirton (1999) disputed the fact that ROSCA participants are credit constrained as proposed by Besley et al. In trying to explain why wealthier individuals are members of ROSCA, they observed individuals who are unlikely to be credit constrained in the formal financial market and found out that, these individuals also part-take in ROSCA. Moreover, lack of assets for collateral is given as a reason why people should choose an informal finance mechanism

(such as the ROSCA) over a formal financial institution.

A theory that has also gone through viral empirical studies is the theory that, women are more likely to participate in ROSCA than men.

At a theoretical level, Anderson and Baland (2002), rely on an intra-household conflict in consumption decision and of the existence of asymmetric preferences for household goods between men and women.

A theory regarding the link between ROSCA participation and durable goods acquisition was developed by Besley et al (1993, 1994), they confirmed that, in a world where a number of individuals have an aim of

acquiring an indivisible durable consumable good and has no access to external help or formal financial intermediation, ROSCA provide a good means of realising gains from inter-temporal trade.

Gugerty (2007) postulated that what lures an individual in joining a ROSCA is the ability to save in an effective way rather than impatience. "Savings require self-discipline and ROSCA provides a collective mechanism for individual self-control in the presence of time-inconsistent preference and in the absence of alternative commitment technologies"

Kedir et al. (2011) on theoretical grounds postulated that savings and deposits from an interest paying oriented bank provide a relatively lower yield, but a relative safer instrument of investment for poor people. On the other hand, random ROSCA is quiet riskier. The basic form of its riskiness is its lottery nature of given out pots to the lucky participants. Since no rate of interest is attached to savings associated with ROSCA, a late receipt of pot implies a loss of guaranteed interest income that a bank deposit would have granted. Also given borrowing constraint, an early ROSCA pay-out gives a major source of finance to a lumpy investment of capital goods, notwithstanding consumer durables. Thus ROSCA participation is riskier but gives higher yield, whereas investment in bank deposits is safe but its yields are lower.

Adams and de Sahonero (1989), Handa and Kirton (1999) made a theoretical postulation that, married women of middle age who have acquired at least basic education are more likely to be ROSCA participants.

Anderson and Baland (2002), Rutherford (2000), Vetrivel and Chandrakumaramangalam (2010) hypothesized that credit-constrained individuals are banned from the credit market because they lack a minimum starting budget. On the same line, Besley et al. (1993), Levenson and Besley (1996), hypothesized that poor people are banned from formal credit market since they don't have collateral security to start with. So they should be motivated to participate in ROSCA than wealthier people.

Recent studies by Kimuyu (1999) and Varadharajan (2004) suggest that the very poor people are less motivated to participate in ROSCA because they lack minimum starting budget.

1.2.2 Some empirical review

Gugerty (2007) studied how ROSCA supports individual's self-commitment in Kenya. Data were collected from 70 ROSCAs located in Busia and Teso districts situated in Western Kenya. The main occupation of the people in these two districts is subsistence farming based on very small scale. The two districts are regarded as poor in the Kenyans' history. She reported that the major participants of ROSCA in the study area are women. She went ahead and postulated that, with the overall women's group of about 80 in the sample, 77 groups operated in ROSCAs. According to his sample, the average ROSCAs had operated for 6.5years and have completed their fifth round of rotation. The longest ROSCA in his sample has existed for 19years. Out of the 77 ROSCA groups, 22 have existed and operated fully for ten or more years. Some members were found to be leaving the association after a complete circle. Out of 1066 participants, 64 participants left the association after a complete circle with new members joining. She stimulated that, married women are more likely to be ROSCA participants as compared to unmarried women. Women participation, on the other hand, was reported to be higher than men participation. Women who had access to formal sectors were reported to have a higher rate of ROSCA participation than women without access to formal sectors. Gugerty estimated a probit model to predict the probability that, a women's group member is a participant of a ROSCA group. She derived from the analysis that, married women who live under the same roof with their husbands are less likely to be ROSCA participants.

Ambec and Treich (2007) considered self-control problem on the part of people as another motive for joining ROSCA. They stressed on the view that ROSCA is a committed device that helps people to cope with their self-control problems. They employed a model whereby people wish to avoid too much spending on future purchases of superfluous goods. And they noted that one best way to escape such future purchases is to be committed in advance to contribute a fixed amount. ROSCA being the commitment device for such an adverse contribution enables its participants to decrease the available income at their dispose for those purchases. They

went ahead and provided an evidence to show that random ROSCA is sometimes better than organizing a credit market. In their model, ROSCA turns out to be efficient, in the absence of motive of savings. They concluded by saying that the durable good motive postulated by Besley et al and the self-control hypothesis may not be mutually exclusive but complement each other.

Agegnehu (2012) conducted a study whether there exists a financial benefit in joining ROSCA. They took their evidence from equb in Ethiopia. They found out from their survey that, financial motives for joining ROSCA exceeds all other motives in large ROSCA whereas social motives for joining ROSCA are greater for small equbs. They also found out that participants who join large equbs do so to avoid higher operational cost in the form of transaction cost. Whereas with middle equbs most of the participants join because they wish to own an indivisible durable good. Participants under this form of ROSCA cannot be enrolled under what they called saving down strategy due to high-interest rate attached to such saving strategy. What prevents most of the participants from the saving down strategy in Banks are lack of committing future and high transaction cost. They went ahead and postulated that, net payment for participants who wish to receive the last pot as compared to saving in a bank equal the interest rate forego plus transaction cost incurred in ROSCA minus the transaction cost in case they transact with the bank. Normally transaction costs associated with activities of formal financial institutions are higher than those of informal institutions.

In their assessment of the operations of rotational savings and credit associations in the Kumasi metropolis of Ghana, Owusu et al. (2013), found that capital expansion is the major reason that influences the individuals to participate in ROSCA. Out of the 200 respondents, about 80% of the respondents reported capital expansion as their main motive for joining the association. It was again reported that 75% of the respondents had ten members in their various associations as their maximum number while those associations with 15 members' represented 17.5% with the remaining 7.5% representing the associations with 20 members. Their per period contributions, on the other hand, ranged from GHC20 to GHC50 with only a few of the association contributing between GHC100 to GHC150 per period. Balloting was also found to be the mode of allocating the pot to the lucky individuals.

1.3 Types of ROSCAs that are found in the Ghanaian Economy

There are numerous forms of ROSCAs in the Ghanaian economy, namely, office ROSCA, neighbourhood ROSCA, ethnicity and religion ROSCA and finally the market ROSCA. These forms of ROSCAs play their economic, social and cultural roles perfectly in the economy. Participants can join more than one form of ROSCA at the same time and can also hold more than one share in any of the form(s). The forms of ROSCAs in Ghana are explained below:

1.3.1 Office ROSCA

This form of ROSCA can be formed in two main ways. Firstly, a group of people who work in the same office can come together and form such an association. Secondly, authorities of governmental bodies or official welfare programs can program this form of ROSCA. For instance, the family welfare program. In Ghana, a lot of people who do administrative work for various companies and even workers of several formal financial institutions do come together and set up a rotating savings and credit associations. They do that for the purpose of buying an indivisible good or money they set aside to cater for their unforeseen circumstances. Participants of office ROSCAs at times use their membership of the association as an insurance against risks. Those in the formal financial institutions form such associations because credit from ROSCAs requires no interest. As the researcher was a witness to an office ROSCA which happened at the Electricity Company of Ghana in the ash-east regional office, where five service personnel (Ernest, Jessie, Tawia, Abigail, and Daniel) in the year 2014, came up and formed a rotation savings and credit association in order to help each other as they wait for their national service allowances. With the office ROSCA, participants mostly meet on monthly basis especially immediately after their payday. This type of ROSCA mainly consists of few participants who contribute quite a

huge amount as compared to other forms of ROSCA. These participants really know each other and the problem of defaults are minimized under this type of ROSCA.

1.3.2 Neighbourhood ROSCA

This is one of the most popular forms of ROSCAs in the Ghanaian economy. Neighbourhood ROSCA consists of mainly individuals who have lived in the same neighbourhood for quite some time and have agreed to come together and form a savings and credit rotational association. It mostly consists of a lot of people and everybody in the neighbourhood is eligible to be a participant provided no criminal act is tag against his/her name. They are mainly organized by the youth of the neighbourhood and mainly females constitute a higher percentage of participation. The default of participants is more likely since it consists of a lot of the youth in the neighbourhood. Their periodic contributions are quite low as compare to office ROSCA. At times too, the entire adults in the neighbourhood find themselves in such association.

1.3.3 Ethnicity and Religious ROSCA

Another form of ROSCA that is very common in the Ghanaian society is the ethnicity and religion ROSCA. A group of people from the same ethnic group or perhaps that speaks the same language, who are living outside their place of origin often come together and form ROSCA. On the other hand, religious ROSCAs are also forms of ROSCA in which members from the same religious communities come together and form ROSCA. They, first of all, come together to sing and pray verses and then carried on with the ROSCA meeting. In Ghana, religious ROSCAs have a relatively low contribution rate because their main aim was to establish the association to first render religious services. With this form of ROSCA, their periodic meetings are conducted on weekly basis, rather than monthly. The number of participants of these forms of ROSCA is dependent on the number of people who are from the same ethnic group or religions who are located at the place outside their origin and interact with each other.

1.3.4 Market ROSCA

The final type of ROSCA which dominates in the Ghanaian economy is the market ROSCA.

This form of ROSCA is mainly organized by traders in the marketplace. Under this form of ROSCA, there are no meetings that are actually held. Rather an agent is selected to move around in collecting their periodic contribution and the pot is being assigned to the agreed winner. Their contribution is done on daily basis.

1.4 Operations of Rotating Savings and Credit Associations (ROSCA) in Ghana

As it has been indicated in the previous chapters, ROSCA members contribute a lump sum of money into a pot which is given to one individual at every period of the association. After an individual participant has received the pot, it becomes his/her obligation to fulfill the payment of his/her contribution until every individual in the association has received the pot. There is an alternation of being a lender or a borrower depending on the time a member receives the pot. There are also some factors that make ROSCA in Ghana unique as compare to ROSCAs in other countries. These factors include:

1.4.1 Membership

Ardener (1964), stimulated that the number of participants in ROSCA can range from a handful to hundred. However, the number of participants and the motivation to participate has an inverse relationship. This is due to the fact that people perceive the monetary value of participation and the actual value of participants' voice to be insignificant as participants increases. Participants may be selected on the basis of age, educational level, sex, ethnic affiliation, occupation etc. (Sandsør, 2010). Some ROSCAs are established based on political affiliation (Ardener, 1964).

In Ghana, participants of rotating savings and credit association (ROSCA) are mainly selected by organizers or leaders. These organizers based their selections on ethnicity and geographical limitations. ROSCA in Ghana mainly consists of people from the same ethnic group, people who come from the same place and have lived in the area for a long period of time, people who speak the same native language and finally people who work in the same organization. Organizers select people in the society who are not socially deviant so that at least the association will be assured of a minimal default.

1.4.2 Transferability

In Ghana, the pot could be or could not be transferred. The transferability of the pot depends on the laid down procedures at the time of the establishment of the association.

1.4.3 Contribution

The amount each participant contributes in each period is determined by the number of participants. ROSCAs with few participants contribute a huge sum of money and those with many participants have less contribution. Looking at the number of participants they project the total amount that each individual participant can get. And therefore, endorses an amount valuable enough to pursue their purposes. They also permit an individual who wishes to have more than one share or contribution in a particular circle thereby increasing his chances of winning the lump sum.

1.4.4 The Fund

In Ghana, despite the fact that all participants contribute the same amount throughout the lifetime of the association, the benefits accrued to the participants are not the same. At a given point in time, all the members will move from being net savers to net debtors with the exception of the last person who becomes net debtor throughout the circle (Dejene, 1993). In other words, "all members but the last to receive the fund get interest free loans of decreasing magnitude for decreasing periods, and all but the first give interest free loans of increasing magnitude" (S. Ardener, 1964).

1.4.5 Cycle period

Cycle period refers to the frequency with which the association meets and makes the contribution. Cycle period is found in the Ghanaian economy to be mostly daily, weekly, monthly and yearly. But monthly circle periods are reported to be the most frequent period cycle. Also how frequent the cycle is are at times dependent on the amount to be contributed. The smaller the amount, the shorter the cycle and the bigger the amount, the larger the circle.

3.4.6 ROSCA Performing a Function of Assessing Financial Risk

Organizers of ROSCAs based on social capital to embark on recruiting new participants from their own points of view. They recruit participants whom they can depend on to meet the commitment in terms of finance. In the same vein, participants will agree to join the association as long as they see the organizers to be trustworthy and credible. Organizers being regarded as credible must be able to select from the Society default free individuals to join the association, notwithstanding their ability to perform all the administrative work which includes, ensuring payment, collecting funds, scheduling meetings etc. participants, on the other hand, must also put some level of trust in organizers which will ensure that organizers will not use or evade with funds after the first contribution. In many cases, new members join the association based on recommendations by existing members. At times, for new members to show their level of trustworthiness, they are pegged against receiving the last pot

3.4.7 Lower Transaction Cost

The transaction cost associated with ROSCA is quite lower as compared to banks. Since participants are aware of each other's creditworthiness, transaction cost attached to formal credit market such as running history on credit, collateral inquiry, pre-loan and post-loan monitoring are not required under ROSCA. Due to the fact that transaction cost is lower, ROSCA participants are able to receive loans as quickly as possible. Whilst clients with inadequate or no credit history may encounter some difficulty or delay in obtaining funds from formal financial institutions. Finally where meetings are held may be homes of some of the participants which come without any cost.

3.4.8 Mode of Selecting Winner

In Ghana, the mode of selecting a winner of the pot is mostly classified into two main categories namely,

1. By agreement with all the participants, the pot is given to people who are usually in need of financial support.
2. Lots are being cast and the lucky winners are being given the pots. Here members who have received the pot before do not participate in the subsequent lotteries but do not forfeit their contribution.

4.1 ROSCA as an Economic Institution

Individuals have an abundance of economic needs which include, saving in a reliable way, borrowing money at a low cost and finally being able to insure themselves against unexpected expenditure. ROSCA as an economic institution helps in given out solutions to these economic needs. Once an individual participant has received the pot, it becomes his obligation to continue with his/her contribution into the pot. On the other hand, the other members are saving as they await their winnings of the pot. In this manner, ROSCA has served as both credit and savings institution. Also, the fact that, orders of rotation are changed assures individual participants a certain degree of insurance.

The various ways in which ROSCA act as an economic institution includes:

4.1.1 Savings and Credit

"The most obvious function of these associations is that they assist in the small-scale capital formation, or more simply, they create savings. Members could save their contribution themselves at home and accumulate their own funds but this would withdraw money from circulation. In rotating, credit association capital need never be idle" (S. Ardener, 1964). In chapter one, we cited an example of five school teachers who wish to obtain a bicycle to help them reduce their lateness to school. And we discussed how they could use ROSCA to pool their resources in other to help each of them to attain the bicycle before the end of the fifth period. To clearly illustrate the gains that each teacher obtains from joining the ROSCA we characterize their savings strategy assuming an absence of credit and compare it to the cooperative strategy where they form a random order ROSCA. In general, let's assume the teachers are referred to as individuals, and the bicycles are also referred to as an indivisible good. Five individuals $i=1,2,3,4,5$, wish to obtain an indivisible good which cost 500 Ghana Cedis. Each of the individuals earns 100gh every month and the good must be purchased within the time periods $t=1,2,3,4,5$. M represents the individual's income with C being the benefit he/she obtains when he owns the indivisible good in period t .

ROSCA under this content can also be regarded as having a cooperative strategy, in the sense that, each of the participants has an incentive to cooperate. The first exhibition of cooperation is the use of the lottery to decide who receives the pot first. Looking at the scenario, before the draw, each of the participants has a positive chance of winning the pot for an extra period compared to the non-cooperative strategy given an expected utility gain from cooperation.

Also considering our scenario in chapter one. Let's now assume that, there are n participants who wish to save for an indivisible good x . Hence the cost of the indivisible good is nx . Now, if participants save alone at home, they could save one hundred Ghana cedis at each period and would have to wait for n periods. However, if they join a ROSCA, every member will be strictly better off except the last person on the rank. This makes it clear that participants are better off ex-ante when saving in a ROSCA than saving on their own. This is referred to as the early pot motive.

3.4.2 Savings Strategy

Rutherford (2000) explained the importance of money as the difference between those who have money and those who don't have. He went ahead and postulated that the main aim of financial service is to help individuals on how to manage their savings. Financial services provide this source of help in two folds. Firstly, they provide access to previous incomes saved in different forms. Secondary, they provide a saving strategy.

3.4.2.1 Saving Up Strategy

This is a strategy whereby individuals keep part of their regular incomes as a form of savings and accumulate the savings into a huge sum for serving a huge expenditure. The net savers for every period of the life of the association are regarded as practicing saving up strategy.

3.4.2.2 Saving Down Strategy

This strategy is sometimes called "borrowing and repaying loan". In saving down strategy the individual receives the amount he/she will need for his/her huge expenditure and repay it gradually until the full loan is repaid. The difference between saving up and saving down strategy is the availability of huge sum of money before savings in the latter while it will be ready after savings in the former. Net debtors in the association are classified as performing saving down strategy.

3.4.2.3 Saving Through Strategy

Saving through strategy is the strategy that combines both saving up strategy and saving down strategy. Here the lump sum becomes available to the individual at the mid or some point in his/her series of savings.

ROSCAs on the other hand act as a vehicle for savings in poor households where there is a conflict between preferences over immediate consumption and savings. According to Anderson and Baland (2002), ROSCAs are commitment devices, whereby people can keep their money to be used in the future. Participants use their savings for the purchase of durable goods.

4.4.3 ROSCA as Insurance

Another great motivation of an individual joining ROSCA is because of its ability to give some level of insurance. Sandsør (2010), stated that ROSCA participants at times do not want to take the pot early since they consider ROSCA as an insurance scheme. Ambec and Treich in their analysis of ROSCA also saw ROSCA to be a substitute for insurance. Again people who come together and form ROSCA are basically from the same village and have similar jobs and revenue. This is not different from risk-sharing activity (Ambec & Treich, 2003). ROSCA can also act as an insurance package for members who are yet to receive the pot and suddenly needs money to address unforeseen circumstances (Sandsør, 2010). Thus if a participant has not yet got to the turn of receiving the pot and he/she needs money suddenly in order to cater for funeral or health expenditures. The participant can be permitted to receive an early pot order in the rotation with the agreement of all the participants being willing to change the order of rotation in favour of the participant who is in need. In this case, a conflict of interest occurs when one member has an unexpected income loss and wish to obtain the next period's pot, but the member in line to receive the pot wish to receive it sooner rather than later. The member who is dying in need of the pot will have to put reliance on the strength of cooperation in the association in order to convince the other members to change the order of rotation. Here, ROSCA helps in pooling of resources in

other to help the participant who has an unexpected income loss or the participant who needs money to cater for a sudden funeral or health expenditure, should all the participants agree with the change in the order of giving out the pot.

Thus ROSCA helps in pooling of scarce resources to help each other especially when a participant who his/her turn is not due and has encounter loss of income or a funeral, based on the cooperative strategy of the participants, ROSCA helps in giving financial assistance to such people. For ROSCA to serve such a purpose, the recipient who is in need must be waiting for his/her receipt date.

ROSCAs serve as a source of insurance to its participants even in the presence of formal credit market enabling all the participants to share shocks among themselves. ROSCA gives a source of insurance against illness, accident or death. Many petty traders who participate in ROSCA may use their pot to protect themselves against contingencies such as sickness and death. Many participants use their winning pots from ROSCAs to cover such expenses.

4.5 ROSCA as a Social and Cultural Institution

Geertz 1962:260, states that “ROSCA is a socialization mechanism, in that broad sense in which „socialization“ refers to not simply the process by which the child learn to be an adult, but the learning of a new patterns of behaviour which are of functional importance in a society, even but adults”. ROSCA helps in enhancing social status of its participants (Ardener, 1964).

Giving social capital to its participants is one of the major roles of ROSCA to its members. Friendship is not the only gain from joining ROSCA. It contributes to the reputation and networking of its members as well as performing a function as a source of information to its members. The purpose of many ROSCAs is basically to meet the financial needs of its participants. Especially those in the marketplace (market ROSCA), where collections are done every day from each participant, many ROSCAs have a social purpose and a large gathering of its members at each period of the existence of the association. In some extreme cases, the contributions are used for the purpose of paying for social events organized by winners of the pot. Bortei-Doku Aryeetey and Aryeetey (1996), identified two main types of ROSCAs in

Ghana. “First, is the single purpose Susu savings club and secondly, mutual aid Susu saving club with multifunction” (Bortei-Doku Aryeetey & Aryeetey, 1996). The main purpose of the first type of ROSCA is strictly savings and has no or minimal quantum of specialization. In the second type of ROSCA, gathering and socializing of its members is very much essential.

It can be testified that, in the Ghanaian economy where there exist similar economic equivalence alternative or even superior alternative, many people choose ROSCA. This can be an indication that, the social benefit attached to this form of association is of high value to an extent that members refuse to choose the formal alternative. If this holds, then there should be a higher expectation of a greater shift away from economic ROSCA than social ROSCA when the formal alternative is introduced.

Thus ROSCA, on the other hand, performs its function as a social institution by serving as a social meeting place for participants and provision of social aid, thereby overcoming some vital societal problems in savings such as not being able to save due to time inconsistency, procrastination, weakness in savings, high demand by other family members and colleagues. ROSCA helps people who find it cumbersome in pursuing autarky savings to join hands and make savings.

Social capital gained as a result of being a participant of ROSCA measures self-discipline which gives easy access to credit acquisition. ROSCA participants join the association as a means of making payment weekly, daily, or monthly but in the long run, they save against their future. Hence defaulting ROSCA members endanger their future against future credit. ROSCAs give participants the opportunity to network that provides financial support to help each other in their economic endeavours. Organizers and participants based on social

capital to enforce all members to continually commit to the payment of their contributions. Participants are forced to oblige to their contribution for the fear of social consequence. At times, the organizer or a member may visit the home of a default participant and alert him/her to comply with his/her obligation of contributing to the pot. When the default participant refuses to oblige, the organizer or the member now tells all the other members what the defaulting participant is up to.

If we consider the fact that people cannot wait for a longer period to obtain their indivisible good as the main aim of joining ROSCA, then, there becomes a conflict of interest as to who should be the first recipient in the rotation. The utility of each participant increases as they receive the pot earlier. So as normal consumers, each of the participants has the incentive to argue in other to be the first recipient of the pot. Also, if the rotation is reversed after all the participants have received the pot once, the participant who received the pot last has a greater incentive to argue for the first pot allocation this time. For ROSCA to function well, its participants must clearly understand its organizational structure. And this is where fairness comes in. ROSCA becomes fair to its participants when all the participants have the same expected receipt date. In which case the ROSCA should be organized so that the dates that each participant receives the pot are decided by a lottery at the beginning of each rotation. The fact that many ROSCAs in Ghana use lottery as their way of allocating their pots makes it fair since all the participants have an equal chance of winning the pot. In a random ROSCA, the fairness norm is to equalize expected dates.

4.6 Sustainability, Enforcement and Organizational design of ROSCA

Before ROSCA can serve its function as an economic, social and cultural institution, sustainability in itself and as an institution among others is a prerequisite. For its internal sustainability, each participant of the association is required to continue with his/her contribution to the pot once he has received the pot. ROSCA, on the other hand, will be externally sustainable if it is able to perform its economic, social and cultural functions even if the existence of other formal and informal institutions becomes rampant.

For ROSCA to perform its functions well, each member must commit to his/her obligation of paying to the pot once they have received the pot. But if members are not willing to continue with their contribution to the ROSCA once they have received the pot, then the ROSCA is not internally sustainable. In sustaining the random ROSCA which is the most common form of ROSCA in Ghana, the organizational structure of the random ROSCA must be obeyed. In the random ROSCA, the order of allocating the pot is decided randomly at the beginning of each cycle. The participants, who encounter the enforcement problem the more in random ROSCA, are the participant who receives the pot first. These participants know that at least there exist n periods in other for him/her to receive the pot again. Considering fixed ROSCA whereby the order of allocating the pots to all the participants are known in advance, the enforcement problem is greater for both the first recipient and the last recipient. Whereas with bidding ROSCA, whereby recipient does so by bidding more and therefore there is more to gain when participant defaults. The conclusion here is that enforcement problem is greater in the random ROSCA than in fixed and bidding ROSCA.

In an attempt of preventing default, membership fees can be initiated which will be repaid at the end of the rotation. But another disadvantage is that this fee cannot be too large to ensure enforcement. Because the level at which it would ensure enforcement is when the first recipient finds it unprofitable to participate. Another way of preventing participants from defaulting is initiating a punishment against default which will be so large that the first recipient will not find it profitable to default or to deviate from the cooperative strategy.

4.7 ROSCA and its Impact on Economic Development and Poverty Reduction

Rotation savings and credit associations (ROSCAs) have a great role to play in the development of the economy. ROSCA playing its role as an economic, social and cultural institution also helps the very poor households to meet their basic human needs and also improve the welfare of households. It goes ahead and protects participants against future loss of income and finally, it helps in women empowerment. Aryeetey and

Udry (1997) illustrated that the main reason why people join ROSCA is due to capital expansion. Capital expansion, on the other hand, implies more returns and reduction in unemployment.

Expansion in capital recorded as the motive of joining ROSCA helps in combating poverty on the individual level. ROSCA helps in economic development by seeking to create an institution that channels financial support to the poor and needy, who may not meet the requirement to transact with formal financial sectors.

ROSCA plays an important role in achieving the millennium development goals since it is a system that meets the needs of the poorest people. ROSCA has also played a major role in eradicating poverty, promoting education, improving health care and women empowerment in the economy of Ghana.

Poverty goes beyond lack of income or money in people's pocket. There is a significant difference between increasing income and reducing poverty. If the income of the poor increases, they are more likely to participate in ROSCA according to literature. But this does not necessary means ROSCA will reduce poverty of the participants. But the impact of ROSCA on poverty, under this content, will be dependent on how the poor use the ROSCA winnings. For instance, when the poor, after winning the pot, use it for gambling or on alcohol, it wouldn't have any effect on poverty reduction. However, ROSCA performs its function of poverty reduction by helping its participants to be sustained at a certain level of well-being by giving them a financial service that helps to quarantine their basic needs which improve their welfare. Hence, ROSCA serves as a tool for poverty reduction.

5.1 METHODOLOGY

This section focuses primarily on the method that were used in the study, target population, data source, research approach, sample size, sampling technique, and data collection instruments.

5.1.1 Data Source

Both primary was used for the study. The primary source of the data was obtained from administering questionnaires to respondents and conducting interviews. The questionnaire was administered to ROSCA participants, whereas in some cases, interviews were conducted.

5.1.2 Research Approach

A case study of the Asunafo North Municipality of Ghana was employed. This is because the approach intensively studies the individual participant by making it available their characteristics, savings behaviour, expenditure and finally the reasons why each of the participants joins the association. This detailed information was obtained from respondents.

5.1.3 Target Population

The population of interest comprises of the total number of people living in the Asunafo North Municipality. According to population and housing census, the population rate of the municipality is about 124,685. The population comprises of people living in the areas of Goaso, Mim, Akrodie, Fawohyeden, Ayomso and their remote villages.

5.1.4 Sample Size

The sample of the study was based on the residents of the municipality who were participants of ROSCAs. And the sample size was based on the Cochran's formula

$$n = \frac{N}{1 + N(\alpha)^2}$$

Where,

n= sample size

N= Population

α = 95% confidence interval.

$$n = \frac{124685}{1 + 124685(0.05)^2}$$
$$= 398.72$$

This is approximately 400

5.1.5 Sample Methods

Both purposive and convenient sampling techniques were used in the study since the research was being constrained with time and resources. Purposive sampling technique is a non-random sampling technique which was used to select ROSCA participants for the study whereas the convenient sampling technique was also used to select respondents who were ready and in the position to respond to the questionnaire. With regards to the purposive and convenient sampling technique, the questionnaire was administered approximately for a period of 3 weeks to participants of ROSCA.

5.1.6 Data Collection Instruments

The instruments that were used in the primary data collection were questionnaires, interview, and observation. Primarily, collection of data for the study was through administered questionnaire to ROSCA participants. But due to factors such as high illiteracy rate and the research being constrained with time, interviews and observations were somehow used at some point in time. The questionnaires administered were both open and closed ended questions. With the data collection, the researcher started from Goaso (the Municipal capital) to Akrodie, Fawohyeden, Ayomso and finally to Mim.

The questionnaire was made up three sections, the first section talks about the basic characteristics of the individual participant. The second section talks about the savings behaviour of the individual participants. And the final section talks about the other questions which include the expenditure behaviour of the participants.

The questions comprise of both structured and unstructured questions. The structured questions were straight forward with plausible answers in which respondents were asked to choose from and also dichotomous questions with two answers, yes or No. On the other hand, unstructured questions were used to acknowledge the genuine opinions of respondents on certain issues.

6.1 FINDINGS AND DISCUSSION

6.2 PRIMARY DATA ANALYSIS

6.2.1 Summary Statistics Primary Data Set used.

Table 6.1 Basic information

Variable	Obs	Mean	Std. Dev.	Min	Max
Age	400	36.7175	11.15319	17	80
no_child	400	4.2375	2.071672	1	10
Income	400	526.175	485.1314	40	2000
amount_s	400	104.665	115.7117	10	600
no_respo	400	25.0125	13.81247	5	52
amount_c	400	43.875	31.09706	10	150
Distance	213	7.171362	6.427203	1	40
years_li	400	29.52	15.07025	1	72
food_exp	400	110.1725	57.38768	20	400
luxury_e	373	135.9249	119.6405	10	780
sch_fees	311	538.074	807.5209	10	5000

Source: field survey, 2017

Table 6.1 reports the summary statistics of some basic characteristics of ROSCA participants. Out of the 400 participants that were interviewed, the minimum age of the respondents was 17 years with the maximum age being 80 years. The mean age was reported to be 36.72 years with a standard deviation of 11.15 years. The number of children of participants/number of people in participants household range between one (1) and ten (10), with the average number of children and standard deviation being 4 people and 2 people respectively. The minimum monthly income that ROSCA participants receive is 40 Ghana cedis with 2000 Ghana cedis being the maximum monthly income received by ROSCA participants. The average income of the 400 participants was recorded to be 526 Ghana cedis with the standard deviation of 485 Ghana cedis. The 400 ROSCA participants were asked what their total number was in their association. Upon answering, it was observed that the minimum

number was 5 people and the maximum is reported to be 52 people. The average number of ROSCA participants in each association is 13. The amount contributed at each period ranged between ten (10) Ghana cedis and one hundred and fifty (150) Ghana cedis with the average amount contributed to the pot being thirty-one (31)

Ghana cedis. The amount ROSCA participants save out of their income varies from ten (10) Ghana cedis to six hundred (600) Ghana cedis. Considering the number of years that participants have lived in the area, it ranges between 1 year and 72 years, with the average number of years lived in the area by participants being 29.52 years. The mean expenditure on food, luxury, and children school fees by ROSCA participants are 110.17, 135.92, and 538.07 Ghana cedis respectively.

6.2 Characteristics of ROSCA participants

Table 6.2 Characteristics of ROSCA participants

Sex of respondents		
Male	107	26.75
Female	293	73.25
TOTAL	400	100
Marital status of respondents		
Married	301	75.25
Single	86	21.5
Divorce	8	2
Widow	5	1.25
TOTAL	400	100
Highest level of education of respondents		
Highly education	86	21.5
Low or no level of education	314	78.5
TOTAL	400	100
Employment status of respondents		
Employed	65	16.25

Unemployed	335	83.75
TOTAL	400	100
Criterion for allocating the pot		
Balloting	281	70.25
Lottery	117	29.25
Bidding	2	0.5
TOTAL	400	100

It can be discerned from 6.2 that, females constitute a greater portion of ROSCA participation. The results demonstrate that majority of the respondents 73.25% (n=293) are females whilst

26.75% (n=107) are males. This indicates that indeed females are more likely to participate in

ROSCA than males. This confirms the assertion made by Gugerty (2007) and Varadharajan (2004) that females are more likely to participate in ROSCA than males and disagrees with the assertion by Dagnelie and Lemay (2005) that, males are more likely to participate in ROSCA than females.

In Table 6.2 above also gives the marital status of the 400 ROSCA participants interviewed. The majority of the participants are married. The percentage of participants who are married constituted 75.25% (n=301), those who are single constitute 21.5% (n=86) whilst 2% (n=8) and 1.25% (n=5) goes for divorce and widowed respectively. This confirms the findings by Varadharajan (2004) and Sandsør (2010) that married individuals are more likely to participate in ROSCA.

Respondents were asked what their highest level of education was. It can be ascertained in Table 6.2 that, those with no level of education and primary/middle/JHS were regarded as having low or no level of education. On the other hand, participants with secondary/vocational, HND/diploma, university and professional education were regarded as being highly educated. From the table, those with no or low level of education constitute the majority 78.5% (n=314) of ROSCA participation whilst those with high level constituted 21.5% (n=86). This confirms the conclusion made by Sandsør (2010) that, ROSCA participants are less likely to acquire higher education. However, it disagrees with the findings by Lasagni and Lollo (2011) that ROSCA participants are highly educated.

Table 6.2 above also shows the employment status of the ROSCA participants. Participants who are unemployed constitute the greater proportion of ROSCA participation. Out of 400 ROSCA participants, 83.75% (n=335) are unemployed and do not receive any fixed amount of salary every month. But they are into farming, learning a trade, petty trading, and store keeping. However, those who had white colour jobs constituted 16.25% (n=65).

Table 6.2 above also depicts the criterion used in the disbursement of ROSCA funds to its members. 70.25% (n=281) indicated that the criterion for their disbursement of fund to its members is through balloting, whilst 29.25 (n=117) indicated that they used lottery as their major criterion for disbursement. 0.5% (n=2) indicated they use bidding as their criterion for disbursement of the fund. Based on the available data, it was found out that most of the rotating savings and credit associations" use balloting as their main criterion of disbursement of

the fund as claimed by Owusu et al. (2013). Respondents were asked how often they carried out their ROSCA meetings. The closed-ended options included daily, weekly, bi-weekly and monthly. It can be ascertained from Table 5.9 that, out of the 400 respondents, 77.25% (n=309) indicated that their ROSCA meetings are carried out on weekly basis whilst 22.75% (n=91) indicated that their meetings are carried out on monthly basis. No respondent indicated their meetings to be daily and bi-weekly. This is to conclude that most of the rotating savings and credit associations meet on weekly basis to contribute to the pot.

Table 6.2 also shows individual participants access to formal financial institutions. Those who have access to these institutions were classified as participants who live in the urban centres of the municipality and those without access were classified as those who live in the rural areas of the municipality. From the table, it can be seen that out of the 400 ROSCA participants, 67.25% (n=269) lived in the urban areas of the municipality whilst 32.75% (n=131) lived in the rural areas of the municipality. This gives an indication that people living in urban areas are also more likely to participate in ROSCA as indicated in the GLSS 6 report. It also confirms the assertion by Lasagni and Lollo (2011) that, ROSCA participation in urban villages are higher than

ROSCA participation in rural villages and also confirms the postulation by Handa and Kirton (1999) that, ROSCA participants are not credit constrained as postulated by Besley et al.,(1993,1994).

Table 6.2 above also depicts the results when ROSCA participants were asked whether they have valuable assets. Assets as a measure of permanent income were used to measure the wealth of the participants. Those who answered yes are classified as not being poor and those who answered no are classified as being poor. Poor participants constitute the majority 56.75% (n=227) whilst rich participants constitute 43.25% (n=173). This confirms the assertion by Dagnelie and Lemay (2005), Varadharajan (2004) and Kurtz (1973) that, poor people are more likely to participate in ROSCA.

In Table 6.2, out the 400 ROSCA participants interviewed, the majority 58.25% (n=233) receive financial assistance elsewhere. Whilst 41.75% (n=167) receive no financial assistance from anybody. This is to say that, people who participate in ROSCA receive extra financial support from other sources. Table 6.2 above also shows the relationship that exists between the 233 ROSCA participants who receives financial assistance elsewhere. Greater proportion 53.22% (n=124) receive the financial assistance from their husbands, 33.05% (n=77) receive their financial support from their close relatives whilst 4.29% (n=10) and 9.44% (n=22) receive their financial supports from wife and friends respectively. This confirms the assertion by Gugerty (2007) that, married women are more likely to participate in ROSCA.

Table 6.2 again demonstrates that a greater proportion of the ROSCA participants have an account with formal financial institutions. Out the 400 participants interviewed, 53.75% (n=215) have an account with formal financial institutions, whilst 46.25% (n=185) do not have an account with any formal financial institutions. This is an indication that most of the people who have an account with formal financial institutions are also ROSCA participants. This confirms the claim by Handa and Kirton (1999) that ROSCA participants are not credit constrained.

In Table 6.2, 96.5% (n=368) answered yes to the question, "in the case of need, can a participant change his/her order of rotation". Whilst the remaining 3.5% (n=14) answered no. This supports the insurance motive of joining ROSCA postulated by Besley et al. (1992) and confirms the conclusion by Sandsør (2010) that, ROSCA helps in pooling resources to help participants who are in need.

Respondents were also asked whether their association changes the order of rotation after each round. Table 6.2 also shows clearly the response of the respondents. Out of the 400 ROSCA participants, 85.75% (n=343) of the people answered yes whilst the remaining 14.25% (n=57) answered no. This is an indication that most of the ROSCA groups reverse their order of rotation after each round. This confirms the assertion by Sandsør (2010) that most of the ROSCA groups change their order of rotation after each round of the life of the association.

It can be observed from Table 6.2 that, out of the 400 respondent interviewed, 80.75% (n=323) ROSCA participants reported that their association is not registered, whilst 19.25% (n=77) also reported that their association has been registered. This means that majority of the ROSCA groups operate in the illegal sense as concluded by Sandsør (2010).

Respondents were asked whether they have written rules governing the association. Table 6.2 depicts the response of respondents. Out of the overall ROSCA participants, 62.5% (n=250) answered yes, whilst 37.5% (n=150) responded no. This is an indication that, most ROSCA groups have written rules governing their association.

According to Table 6.2, out of the 400 ROSCA participants, 97% (n=388) answered yes to the question "Are there any penalties associated with not attending meetings", whilst 3% (n=12) answered no. This gives an indication that most of the ROSCA groups have penalties associated with not attending meetings which confirm the findings by Sandsør (2010).

7.1 Conclusion

It can be concluded that females, married individuals, people with low or no level of education, unemployed, people who are not credit constrained, poor people and people who gets financial support elsewhere are more likely to be ROSCA participants.

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